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PETROLOGICAL ABSTRACTS AND REVIEWS

ALBERT JOHANNSEN

MILLER, WILLIAM J. *Geology of the North Creek Quadrangle, Warren County, New York.* Bull. Univ. of the State of New York. N.Y. State Museum Bull. No. 170, 1914. Pp. 90, figs. 10, pls. 14, map. 1.

Rocks described are diabase, pegmatite, gabbro, syenite, granite, and various metamorphosed rocks. Chemical analyses and recomputations into the norm are given, as well as volumetric modal analyses for many rocks which have not been chemically analyzed. Nine varieties of reaction-rims are reported. Differentiation was found in a gabbro mass. The composition varies from syenite to gabbro in the same mass, but the different phases are irregularly distributed and seem to follow no law. Contact phenomena are described, and the volumetric composition of the rock, which varies from typical gabbro to typical granite, is given for nine different zones.

The geological history of the region is told and a few pages are devoted to economic geology.

MILLER, WILLIAM J. "Magmatic Differentiation and Assimilation in the Adirondack Region," *Bull. Geol. Soc. Amer.*, XXV (1914), 243-64.

The writer describes the effects of the intrusion of great masses of syenite and granite in the Grenville rocks of the Adirondack region. He cites the older literature with regard to the differentiation in this region and shows, by his personal observations, that the inclusions of rocks of the Grenville series, varying from a few feet to a few rods in length, have been either partially or wholly fused and melted into the granite or syenite. While the author believes that stopping and engulfment of portions of the Grenville series was a common process in this region, he says that there is no positive evidence that the composition of the igneous intrusive was thereby appreciably changed.

MILLER, WILLIAM J. *Geology of the Lake Pleasant Quadrangle, Hamilton County, New York*. Bull. 182, New York State Museum, 1916. Pp. 75, pls. 10, figs. 4, map 1.

Geologic and physiographic history of the region, together with petrographic descriptions of various anorthosite-gabbros, syenites, granites, granite- and syenite-porphyrries, gabbros, and diabases.

MOSES, A. J. "A Scheme for Utilizing the Polarizing Microscope in the Determination of Minerals of Non-Metallic Lustre," *School Mines Quart.*, XXXIV (1913), No. 4, pp. 30.

A very useful series of tests which may be applied to the determination of minerals as a supplement to the usual tests before the blowpipe, etc. After describing the general methods of procedure, the writer gives a 19-page key based on taste, flame-color, fusibility, and effervescence or gelatinization with acid, and final optical tests based on refractive index, interference color, optical character, and miscellaneous characteristics.

NIGGLI, PAUL. "The Phenomena of Equilibria between Silica and the Alkali Carbonates," *Jour. Amer. Chem. Soc.*, XXXV (1913), 1693-1727.

O'NEILL, J. J. *St. Hilaire (Beloeil) and Rougemont Mountains, Quebec*. Canada Dept. Mines, Mem. 43, Geol. Series 36, Ottawa, 1914. Pp. 108, map 1, bibliography.

Rising out of the plain to the east of Montreal is a series of isolated hills representing volcanic necks or laccoliths. They have been called the Monteregian Hills and may be tabulated as shown on page 188.

After giving a short account of the geology of the whole region, the author takes up the structural features of St. Hilaire and Rougemont mountains, and concludes from the evidence of undisturbed country-rock, of the coarse texture of the igneous mass close to the outer contact, of the vertical conduit through which the magma passed, of the development of flow texture in the essexite, and of the brecciation shown in the syenite at the contact, that St. Hilaire is an eroded volcanic neck. The evidence at Rougemont Mountain is not so positive. The coarse texture at the contact, which is wavy without regard to topography, and the cliff development on two sides seem to indicate that the conduit was

practically vertical. It therefore probably also represents an eroded volcanic neck.

MOUNTAINS IN ORDER FROM EAST TO WEST	MAIN INTRUSION IN EACH IN ORDER OF OCCURRENCE			NATURE OF INTRUSION	DESCRIBED BY	AREA IN SQ. MILES
	No. 1	No. 2	No. 3			
Shefford.....	Essexite	Nordmarkite	Pulaskite	Laccolith	Dresser	9.0
Brome.....	Essexite to theralite	Nordmarkite to nephelite syenite, and dikes	Tinguaite	Laccolith	Dresser	30.0
Yamaska.....	Yamaskite to essexite to akerite	.....	.....	Neck	Young	5.5
Rougemont...	Yamaskite to essexite to rouge-montite	.....	.....	Neck	O'Neill	9.5
Johnson.....	Essexite to pulaskite	.....	.....	Neck	Adams	0.77
St. Hilaire....	Essexite to rouvillite	Nephelite-syenite	.....	Neck	O'Neill	6.76
St. Bruno....	Essexite to syenite (umpte-kite)	.....	.....	Laccolith?	Dresser	2.83
Mount Royal.	Essexite	Nephelite-syenite	.....	Neck? Laccolith?	Adams Buchan	2.0

The rocks of St. Hilaire are essexite and nephelite-sodalite-syenite, with several varieties of each, and there are various dikes. Essexite was first intruded. At various places in it, brown hornblende becomes prominent. In one occurrence there is a very small amount of ferromagnesian mineral, and labradorite and nephelite greatly predominate. It is proposed to call this variety *rouvillite*. Its mode, determined by calculation based on measurements by the Rosiwal (invariably spelled Rosiwald in the report) method is, plagioclase (Ab_1An_1 to Ab_1An_4) 56 per cent, nephelite 19.5 per cent, purplish augite 7.0 per cent, hornblende 3.5 per cent, pyrite 2.5 per cent, apatite 1 per cent. The rock actually is a light-colored theralite, with a ratio of light minerals to dark of 85 to 15.

On Mount Rougemont an anorthite-olivine-gabbro occurs. It consists by volume of anorthite 52 per cent, augite 32.5 per cent, olivine 8.5 per cent, iron ore 6.5 per cent, hornblende 0.5 per cent. For this rock the name *rougemontite* is proposed.

The author suggests the probability that the Montereian region may be part of a larger province, and the rocks may be related to the anorthosites.

Numerous analyses and recalculations into the C.I.P.W. system, as well as volumetric determinations by the Rosiwal method, are given.